

Name: _____

1. Using the table below, describe the relation between sets in words (1 mark)

Capital City	Province
Victoria	British Columbia
Edmonton	Alberta
Regina	Saskatchewan
Winnipeg	Manitoba

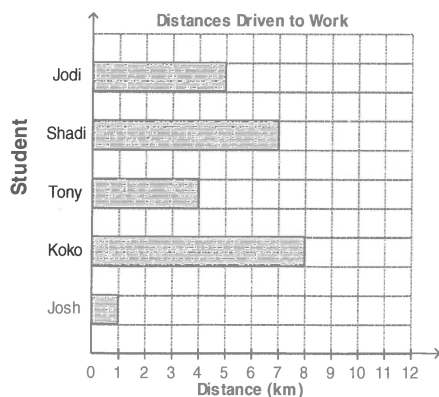
The relation shows the association "of the province" for the set of capital cities and the set of provinces

2. The table shows mass, m (g), of different numbers of beads, n . State the ~~range~~ (1 mark)
domain

Number of Beads, n	Mass of Beads, m , (g)
1	1.56
2	3.12
3	4.68
4	6.24

Domain: $\{1, 2, 3, 4\}$

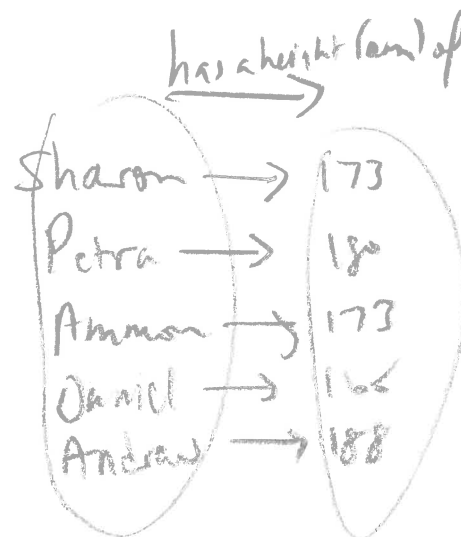
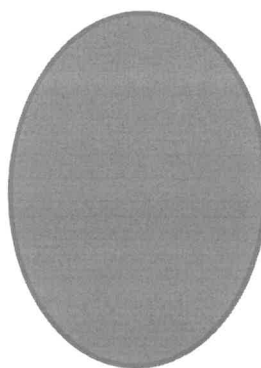
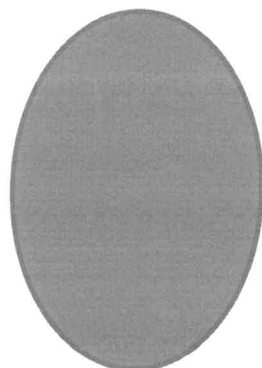
3. Represent the relation, represented by the graph, as a set of ordered pairs (2 marks)



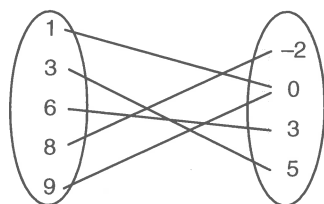
Ordered pairs: $\{(1, \text{Josh}), (8, \text{Koko}), (4, \text{Tony}), (7, \text{Shadi}), (5, \text{Jodi})\}$

4. The ordered pairs represent the heights of 5 students:
 $\{(Sharon, 173 \text{ cm}), (Petra, 180 \text{ cm}), (Ammon, 173 \text{ cm}), (Daniel, 165 \text{ cm}), (Andrew, 188 \text{ cm})\}$

Represent the relation as an arrow diagram (2 marks)

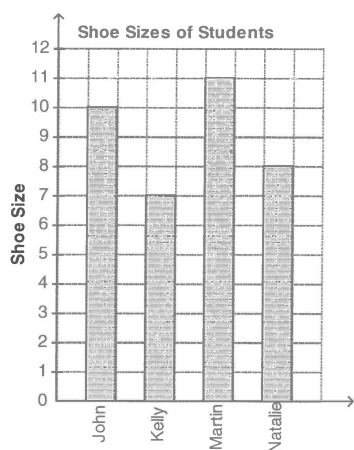


5. Identify the range of this relation (1 mark)



Range: $\{-2, 0, 3, 5\}$

6. Consider the relation represented by this graph. Represent the relation as a table (2 marks)



names	Shoe size
John	10
Kelly	7
Martin	11
Natalie	8

Student

7. Identify the independent variable for the table (1 mark)

Hours Worked, h	Gross Pay, P (\$)
4	38.00
5	47.50
9	85.50

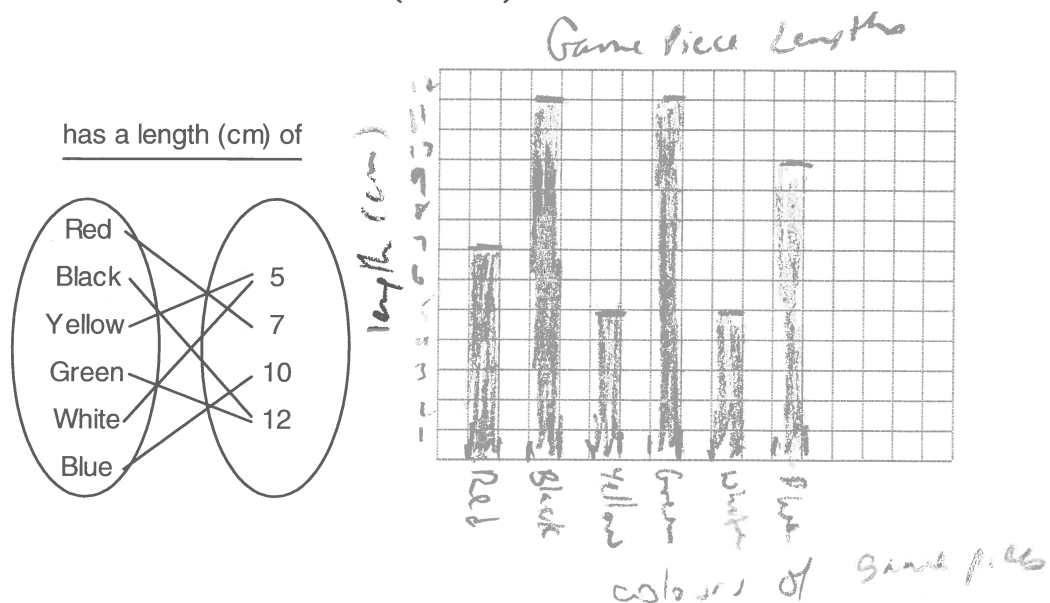
Dependent Variable: Gross pay (\$)

8. This set of ordered pairs shows the years of Winter Olympics and the host city in each year.
{(2002, Salt Lake City), (2006, Turin), (2010, Vancouver), (2014, Russia)}

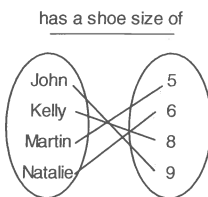
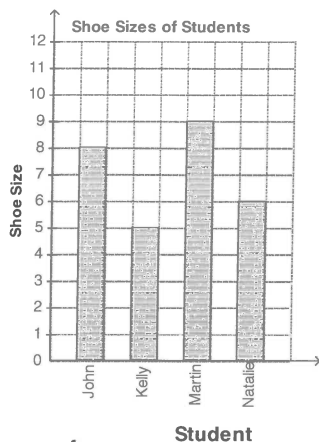
Represent the relation as a table (2 marks)

Year of Winter Olympics	Host city
2002	Salt Lake City
2006	Turin
2010	Vancouver
2014	Russia

9. Different coloured game pieces can be associated with their lengths. Represent the relation as a bar graph. Remember to label the axes (3 marks)



10. The graph and the arrow diagram represent the same relation. The graph is correct but the arrow diagram is not. Which pairing in the arrow diagram is correct? (1 mark)



Correct Pair: (Natalie, 6)

11. Use **ALL** the numbers to the right to complete the following questions: -8, 0, 4, -6, 7, 0

a) Write a set of ordered pairs that represents a function (1 mark)

example $\{(-8, 0), (4, -6), (7, 0)\}$

b) Write a set of ordered pairs that does not represent a function (1 mark)

example $\{(0, -8), (4, -4), (0, 7)\}$

13. a) Write the following equation in function notation: $h = x - 2$ (1 mark)

$$h(x) = x - 2$$

b) Write the following function as an equation: $k(x) = -4x - 1$ (1 mark)

$$y = -4x - 1$$

14. Which set of ordered pairs does not represent a function? Explain why (2 marks)

- i) $\{(2, 5), (3, 8), (4, 11), (2, -1)\}$
- ii) $\{(4, 6), (5, -7), (7, 9), (8, -10)\}$
- iii) $\{(-3, -8), (-1, -6), (-2, 5), (0, 7)\}$
- iv) $\{(7, 0), (4, -1), (-6, 5), (-8, 0)\}$

i) The 2 (first element) is repeated.
There are two y's associated with the 2.

15. For the function $f(x) = 4x - 7$, determine $f(-7.5)$ (2 marks)

$$\begin{aligned} f(-7.5) &= 4(-7.5) - 7 \\ &= -30 - 7 \\ f(-7.5) &= -37 \end{aligned}$$

16. For the function $g(x) = -\frac{2}{3}x + 5$, determine x when $g(x) = 25$ (2 marks)

$$\begin{aligned} 25 &= -\frac{2}{3}x + 5 \\ -5 &\quad -5 \\ (3)(20) &= \left(-\frac{2}{3}x\right)(3) \\ 60 &= -2x \\ -2 &\quad -2 \\ -30 &= x \end{aligned}$$

Gr.10 Intro Applied/Pre-Calculus
Ch.5.1 & 5.2 Relations and Functions